THE BELL SYSTEM TECHNICAL JOURNAL

A JOURNAL DEVOTED TO THE SCIENTIFIC AND ENGINEERING ASPECTS OF ELECTRICAL COMMUNICATION

EDITORIAL BOARD

J. J. Carty Bancroft Gherardi F. B. Jewett
E. B. Craft L. F. Morehouse O. B. Blackwell
H. P. Charlesworth E. H. Colpitts H. D. Arnold
R. W. King—*Editor* J. O. Perrine—*Asst. Editor*

VOLUME IV
1925

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
NEW YORK

Index to Volume IV

A

Abstracts of Bell System Technical Papers not appearing in This Journal, page 178, 339, 508, 762.

Advances in Physics, Some Contemporary, *Karl K. Darrow:* Electricity in Gases, page 112. Waves and Quanta, page 280. The Atom-Model, First Part, page 407; Second Part, page 642.

Anderson, C. N. Transatlantic Radio Telephone Transmission, page 459.

Atom-Model, The, *Karl K. Darrow*, First Part, page 407; Second Part, page 642.

Audition: Speech Power and Energy, *C. F. Sacia*, page 627; Useful Numerical Constants of Speech and Hearing, *Harvey Fletcher*, page 375.

B

Bailey, Austin, Transatlantic Radio Telephone Transmission, page 459.

Buckley, Oliver E., The Loaded Submarine Telegraph Cable, page 355.

C

Cable, The Loaded Submarine Telegraph, *Oliver E. Buckley*, page 355.

Carrier Telephony on High Voltage Power Lines, *W. V. Wolfe*, page 152.

Carson, John R., Electrical Circuit Theory and the Operational Calculus, page 685.

Carson, John R., Selective Circuits and Static Interference, page 265.

Carter, Charles W., Jr., Graphic Representation of the Impedance of Networks Containing Resistances and Two Reactances, page 387.

Charlesworth, H. P., General Engineering Problems of the Bell System, page 515.

Circuit Theory, Electric and the Operational Calculus, *John R. Carson*, page 685.

Clark, A. B., The Transmission of Pictures Over Telephone Lines, page 187.

Conductors: The Alternating Current Resistance and Wave Propagation Over Parallel Tubular, *Sallie Pero Mead*, page 327.

Contemporary Advances in Physics, Some. *Karl K. Darrow:*
Electricity in Gases, page 112.
Waves and Quanta, page 280.
The Atom-Model, First Part, page 407. Second part, page 642.

Cost Studies, Engineering, *F. L. Rhodes*, page 1.

Crandall, Irving B.: The Sounds of Speech, page 586.

Creosoting Plants for Treating Chestnut Poles, Open Tank, *T. C. Smith*, page 235.

Crisson, George, Irregularities in Loaded Telephone Circuits, page 561.

Crisson, George, The Limitation of the Gain of Two-Way Telephone Repeaters by Impedance Irregularities, page 15.

Curtis, A. S., The Vibratory Characteristics and Impedance of Telephone Receivers at Low Power Inputs, page 402.

D

Darrow, Karl K., Some Contemporary Advances in Physics:
Electricity in Gases, page 112.
Waves and Quanta, page 280.
The Atom-Model, First Part, page 407; Second Part, page 642.

E

Electricity in Gases, *Karl K. Darrow*, page 112.

Electric Waves, Propagation of, Over the Earth, *H. W. Nichols* and *J. C. Schelleng*, page 215.

Engineering Cost Studies, *F. L. Rhodes*, page 1.

Engineering, General Problems of the Bell System, *H. P. Charlesworth*, page 515.

Engineering Planning for Manufacture, *G. A. Pennock*, page 542.

Espenschied, Lloyd, Transatlantic Radio Telephone Transmission, page 459.

F

Filters, Mutual Inductance in, with an Introduction on Filter Design, *K. S. Johnson* and *T. E. Shea*, page 52.

Fletcher, Harvey, Useful Numerical Constants of Speech and Hearing, page 375.

G

Gain of Two-Way Telephone Repeaters, the Limitation of, by Impedance Irregularities, *George Crisson*, page 15.

General Engineering Problems of the Bell System, *H. P. Charlesworth*, page 515.

Gill, F., Oliver Heaviside, page 349.

Graphic Representation of the Impedance of Networks Containing Resistances and Two Reactances, *Charles W. Carter, Jr.*, page 387.

H

Harden, W. H., Practices in Telephone Transmission Maintenance Work, page 20.

Hearing, Useful Numerical Constants of Speech and, *Harvey Fletcher*, page 375.

Heaviside, Oliver, *F. Gill*, page 349.

Horton, J. W., The Transmission of Pictures Over Telephone Lines, page 187.

I

Impedance and Vibratory Characteristics of Telephone Receivers at Low Power Inputs, *A. S. Curtis*, page 402.

Impedance, Irregularities in Loaded Telephone Circuits, *George Crisson*, page 561.

Impedance Irregularities, The Limitation of the Gain of Two-Way Telephone Repeaters by, *George Crisson*, page 15.

Impedance of Networks Containing Resistances and Two Reactances, Graphic Representation of, *Charles W. Carter, Jr.*, page 387.

Interference, Selective Circuits and Static, *John R. Carson*, page 265.

Irregularities in Loaded Telephone Circuits, *George Crisson*, page 561.

Ives, H. E., The Transmission of Pictures Over Telephone Lines, page 187.

J

Johnson, K. S., and *T. E. Shea*, Mutual Inductance in Wave Filters with an Introduction on Filter Design, page 52.

L

Loading:

The Loaded Submarine Telegraph Cable, *Oliver E. Buckley*, page 355.

Irregularities in Loaded Telephone Circuits, *George Crisson*, page 561.

M

Maintenance Work, Practices in Telephone Transmission, *W. H. Harden*, page 26.

Manufacture, Engineering Planning for, *G. A. Pennock*, page 542.

Mead, Sallie Pero, Wave Propagation Over Parallel Tubular Conductors: The Alternating Current Resistance, page 327.

Mutual Inductance in Wave Filters with an Introduction on Filter Design, *K. S. Johnson* and *T. E. Shea*, page 52.

N

Networks Containing Resistances and Two Reactances, Graphic Representation of the Impedance of, *Charles W. Carter, Jr.*, page 387.

Nichols, H. W., Propagation of Electric Waves Over the Earth, page 215.

O

Open Tank Creosoting Plants for Treating Chestnut Poles, *T. C. Smith*, page 235.

Operational Calculus, Electrical Circuit Theory and the, *John R. Carson*, page 685.

P

Parker, R. D., The Transmission of Pictures Over Telephone Lines, page 187.

Pennock, G. A., Engineering Planning for Manufacture, page 542.

Physics, Some Contemporary Advances in, *Karl K. Darrow*: Electricity in Gases, page 112. Waves and Quanta, page 280. The Atom-Model, First Part, No. 3, page 407. Second Part, page 642.

Pictures Over Telephone Lines, The Transmission of, *H. E. Ives, J. W. Horton, R. D. Parker* and *A. B. Clark*, page 187.

Planning for Manufacture, Engineering, *G. A. Pennock*, page 542.

Poles, Open Tank Creosoting Plants for Treating Chestnut, *T. C. Smith*, page 235.

Power Lines, Carrier Telephony on High Voltage, *W. V. Wolfe*, page 152.

Preservation of Timber: Open Tank Creosoting Plants for Treating Chestnut Poles, *T. C. Smith*, page 235.

Propagation of Electric Waves Over the Earth, *H. W. Nichols* and *J. C. Schelleng*, page 215.

Propagation Over Parallel Tubular Conductors: The Alternating Current Resistance of, *Sallie Pero Mead*, page 327.

R

Radio: Propagation of Electric Waves Over the Earth, *H. W. Nichols* and *J. C. Schelleng*, page 215.

Radio Telephone Transmission, Transatlantic, *Lloyd Espenschied, C. N. Anderson* and *Austin Bailey*, page 459.

Receivers, The Vibratory Characteristics and Impedance of, at Low Power Inputs, *A. S. Curtis*, page 402.

Repeaters, The Limitation of the Gain of Two-Way Telephone by Impedance Irregularities, *George Crisson*, page 15.

Rhodes, F. L., Engineering Cost Studies, page 1.

S

Sacia, C. F., Speech Power and Energy, page 627.

Schelleng, J. C., Propagation of Electric Waves Over the Earth, page 215.

Selective Circuits and Static Interference, *John R. Carson*, page 265.

Shea, T. E. and *K. S. Johnson*, Mutual Inductance in Wave Filters with an Introduction on Filter Design, page 52.

Smith, T. C., Open Tank Creosoting Plants for Treating Chestnut Poles, page 235.

Sound, the Sounds of Speech, *Irving B. Crandall*, page 586.

Speech and Hearing, Useful Numerical Constants of, *Harvey Fletcher*, page 375.

Speech Power and Energy, *C. F. Sacia*, page 627.

Speech, the Sounds of, *Irving B. Crandall*, page 586.

Static Interference, Selective Circuits and, *John R. Carson*, page 265.

Submarine Telegraph Cable, The Loaded, *Oliver E. Buckley*, page 355.

T

Technical Papers, Abstracts of Bell System Technical Papers not Appearing in This Journal, page 178, 339, 508, 762.

Telephotography; The Transmission of Pictures Over Telephone Lines, *H. E. Ives, J. W. Horton, R. D. Parker* and *A. B. Clark*, page 187.

Transmission Maintenance Work, Practices in Telephone, *W. H. Harden*, page 26.

Transmission of Pictures Over Telephone Lines, *H. E. Ives, J. W. Horton, R. D. Parker* and *A. B. Clark*, page 187.

Transatlantic Radio Telephone Transmission, *Lloyd Espenschied, C. N. Anderson and Austin Bailey*, page 459.

W

Wave Filters, Mutual Inductance in, with an Introduction on Filter Design, *K. S. Johnson* and *T. E. Shea*, page 52.

Wave Propagation Over Parallel Tubular Conductors: The Alternating Current Resistance of, *Sallie Pero Mead*, page 327.

Waves and Quanta, *Karl K. Darrow*, page 280.

Waves, Propagation of Electric, Over the Earth, *H. W. Nichols and J. C. Schelleng*, page 215.

Wolfe, W. V., Carrier Telephony on High Voltage Power Lines, page 152.